NACCHO-Tarrant County Public Health Syndromic Surveillance Technical Assistance Webinar

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Objectives

- Provide technical assistance project overviews used with 3 LHDs at varying stages of syndromic surveillance usage

- Describe and provide resources that can be adapted to other LHD jurisdictions for future development

- Present example of LHD utilization of TA for regional SyS development – Houston Health Department

Overview of Syndromic Surveillance, Data Sharing, Data Provider Collaboration

- What good is syndromic surveillance?
  - Detects conditions indicating unusual / unexpected health event may be imminent
  - Detects unusual or unexpected number of illnesses or syndromes within a period of time or geographic area
  - Detects illness or syndromes in an unusual population

24 HOUR SURVEILLANCE

# Syndromic Surveillance for Public Health

- Early Event Detection (primary)
  - Prevention measures before diagnosis of unusual cases
- Facilitates Outbreak Management (secondary)
  - Case investigation and countermeasure administration
  - Exposure contact tracing
  - Exposure source investigation and linking of cases and contacts to exposure sources

Syndromic Surveillance

- Aggregates data syndromes and sub-syndromes such as :
  - Respiratory
    - Influenza-like illness
  - Gastrointestinal
  - Neurological
  - Rash, shock-coma, hemorrhagic
- Based on traditional sources:
  - Outpatient ICD-10 codes + other clinical data (MU2)
  - Emergency room chief complaints
- Based on non-traditional sources:
  - School absenteeism
  - Over the counter medication sales
  - EMS transports
  - Poison control centers
  - Water quality monitoring systems

Syndromic Surveillance Tools
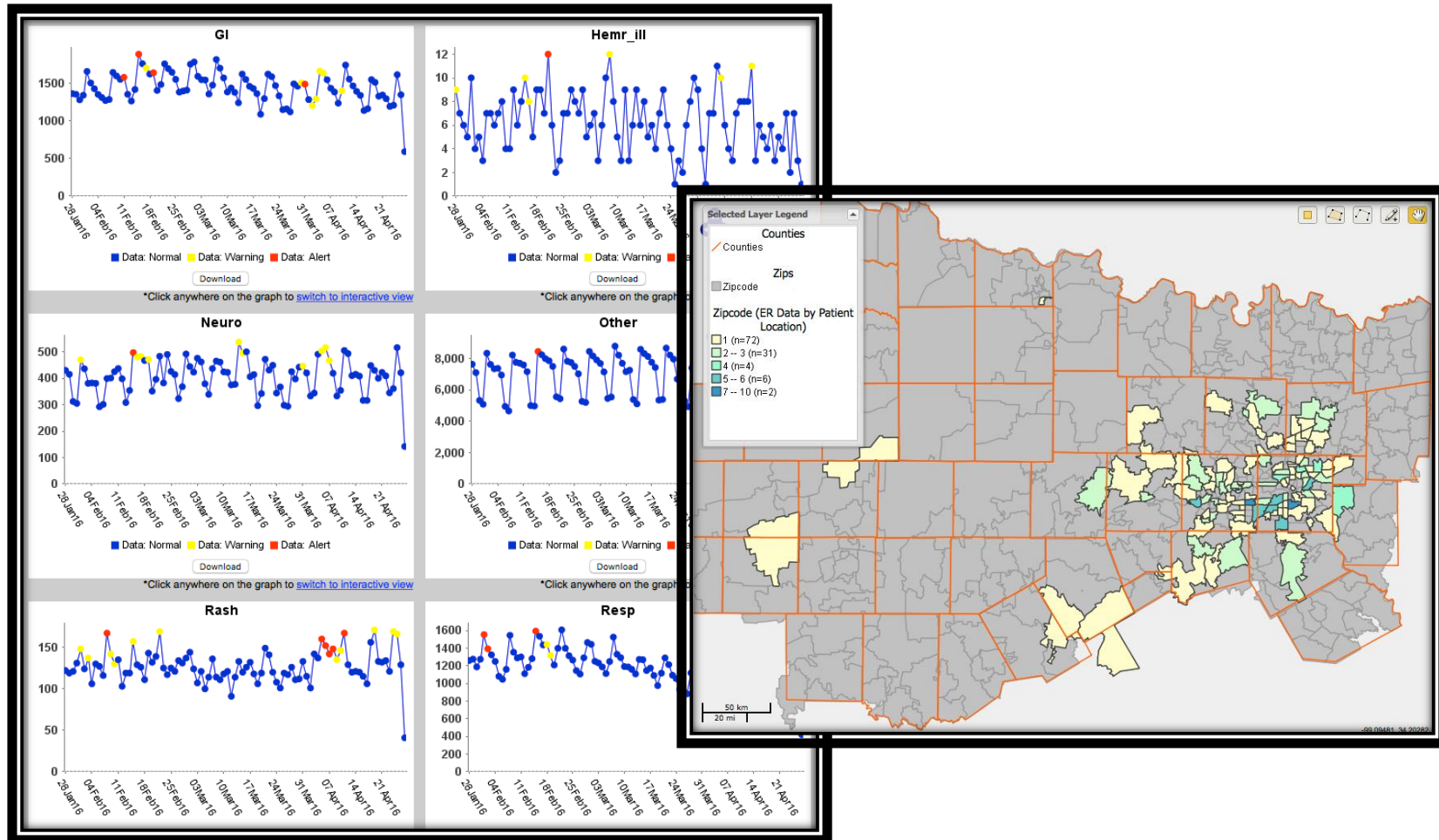
Public Health SyS Context
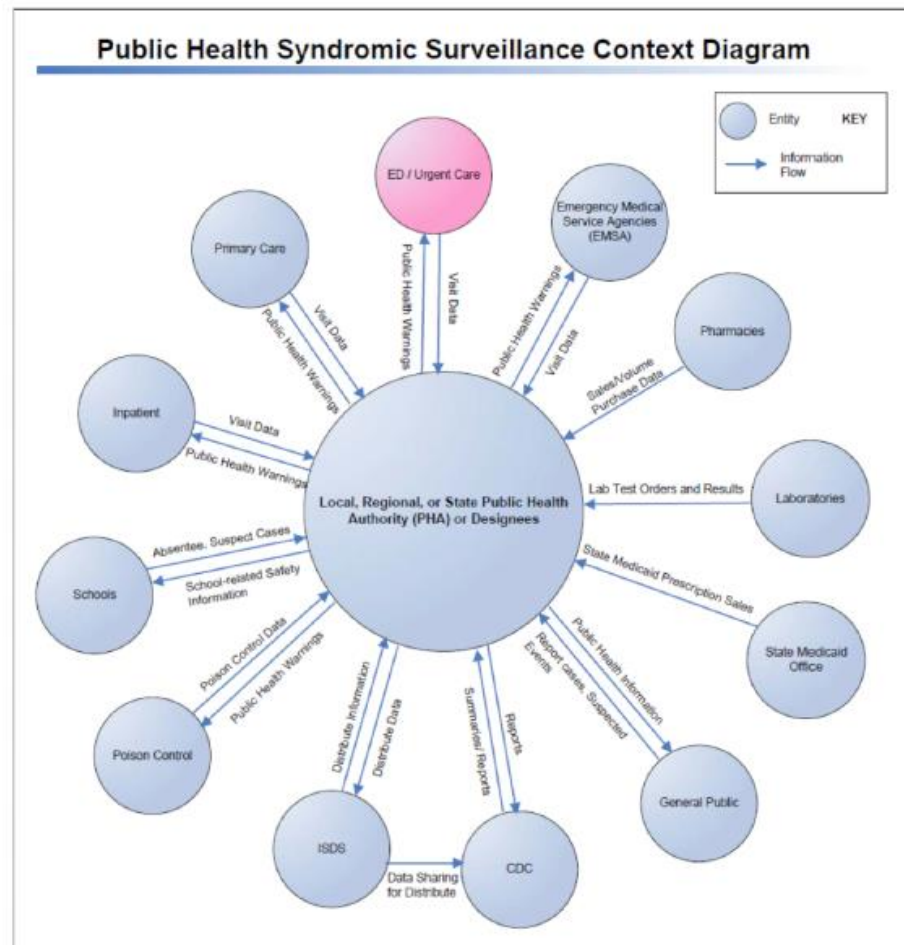
Figure 4 Business context diagram for PHSS: This context diagram illustrates the relationships that exist between entities of PHSS and shows the flow of information required by the core business processes. The focus of this final recommendation is the interaction between ED and UC data and the PHA or their designee. The data sent from the ED or UC provider consists of the recommended minimum data set described in Section 4.
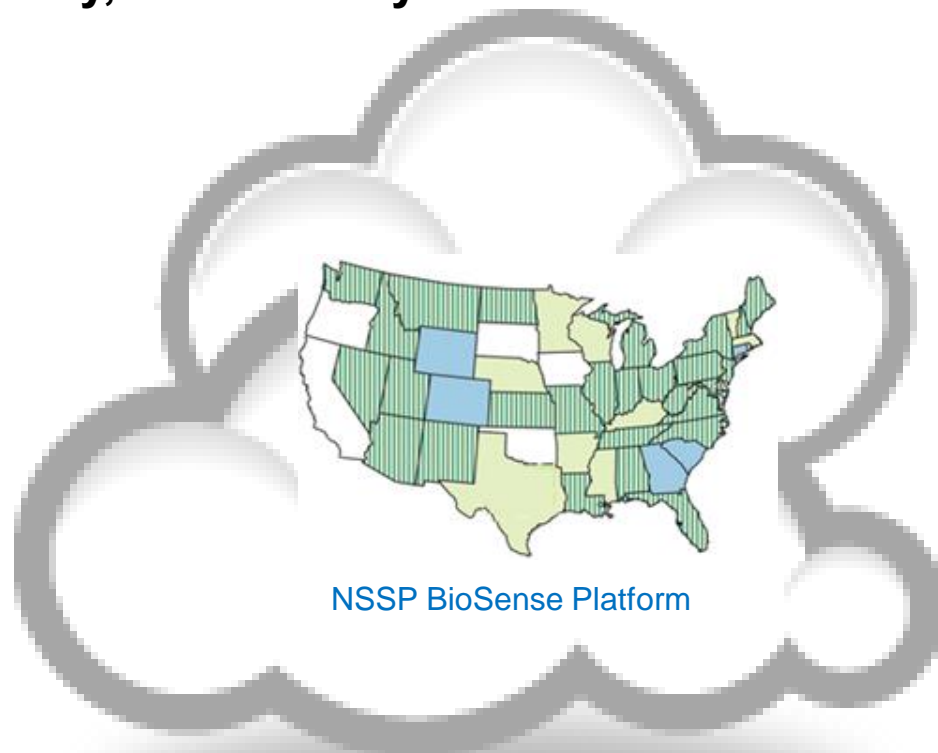
Protect America's Health, Safety, and Security

State and Local PH

NSSP BioSense Platform

Texas Cooperative SyS Project
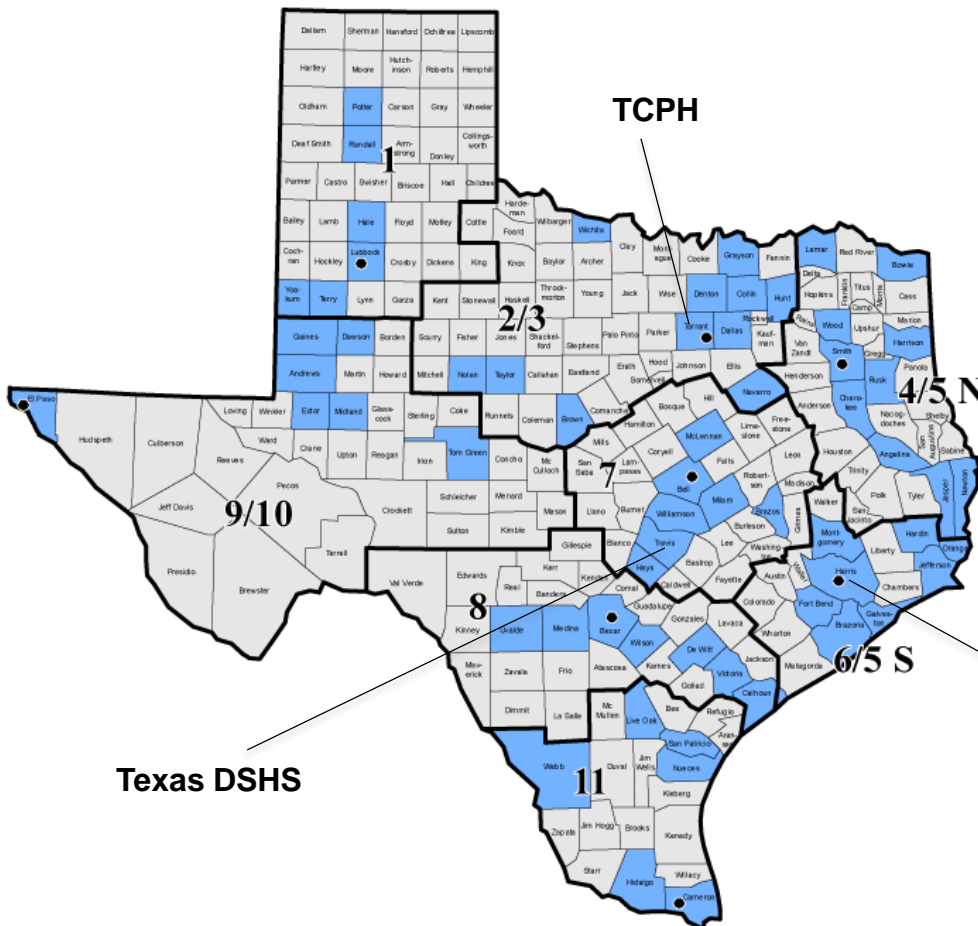
Area Name	Total
Texas	28,240,245
Metropolitan**	25,041,790
NonMetropolitan	3,198,455
Abilene MSA	171,754

Labels on map: TCPH, 4/5 N, 6/5 S, HHD, 9/10, Texas DSHS, regions 1, 2/3, 7, 8, 11

Resources

- Quickstart Guide
- Response Protocol Framework
- Readiness Guide
- PHIN Messaging Guide
- ISDS Core Processes…
- NSSP Onboarding Guide
- NACCHO APC Tools
- CDC MU Web Portal
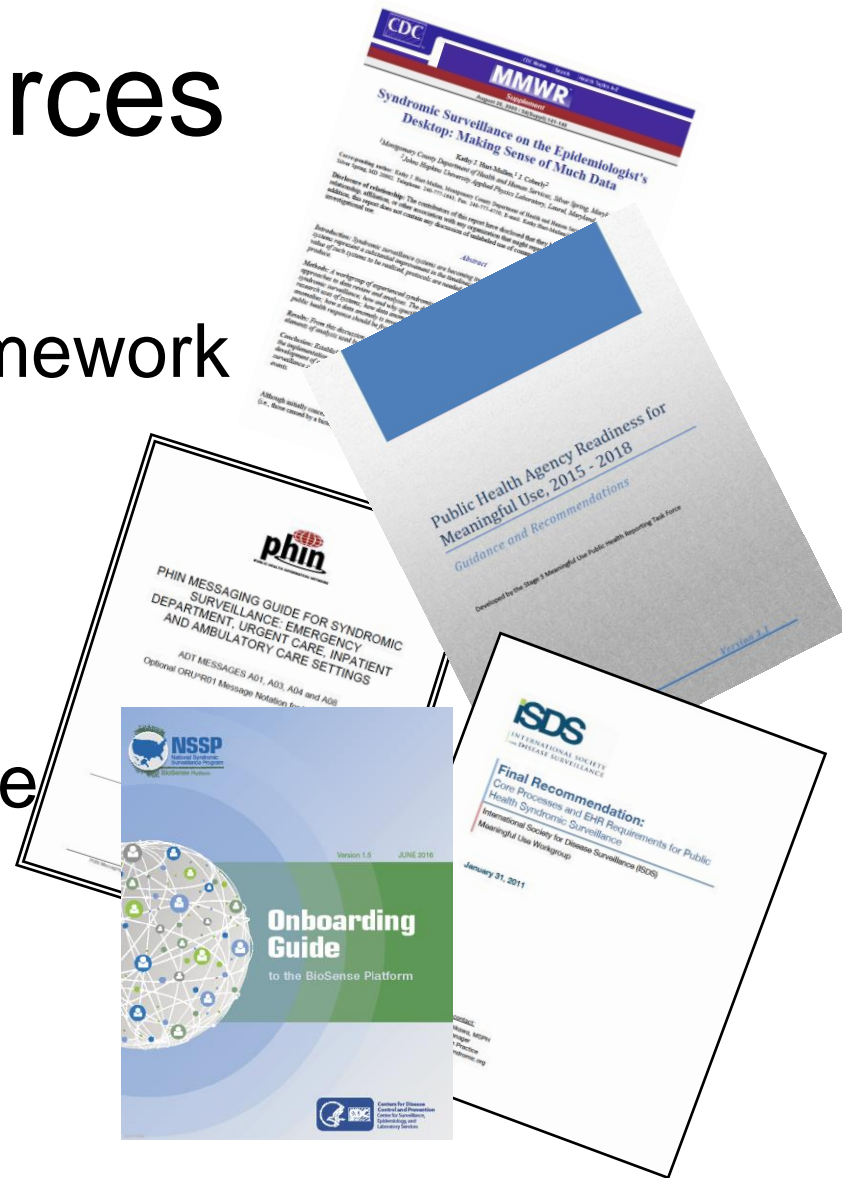
NSSP Onboarding Site   CDC Phin Messaging Guide

http://www.cdc.gov/nssp/

http://www.cdc.gov/nssp/documents/guides/syndrsurvmessagguide2_messagingguide_phn.pdf

Factors for LHD SyS Needs Assessment

- Stakeholders – user expectations vs. system design
  - Avoid "data syndrome," focus on user needs and opportunities for collaboration
- **Basic syndromic surveillance capabilities– local, regional, state or BioSense**
- **Onboarding Data Providers**
- **Data sharing - governance**
- Training for Epidemiologists and hospital staff (ICPs, ED, and informatics staff)
- Staffing support and technical Assistance

Understanding the Surveillance Landscape – Communication & Data Sharing

- Local level - the Who/What/When basic protocols
  - Investigate and communicate!

- Regional/State level
  - Understand access privileges to state system within and between jurisdictions: GOVERNANCE
  - Coordinate investigations through state/local jurisdictions

- Federal level
  - National picture of aggregated data nationally for regions/states that share data nationally
  - Additional access control administered by state/regional administrators for more detailed data sharing

Data Sharing

- Data sharing encompasses two of the three main processes for syndromic surveillance
  - ***Syndrome-based population-health monitoring***
    - Notify and engage partners/leadership
    - Conduct reach-back
  - ***Establish and maintain data sharing***
    - Establish data use agreements or MOU's that clearly define roles and responsibilities
    - Maintain relationships with data providers (CRITICAL)
  - ***Conduct data quality assurance***

Connecting Data Providers

- **Onboarding**
  - **Registration**
  - **Data Use Agreements or MOU's**
  - **MU Reporting Requirements for Stage 2**
- **Collect and Process Data**
- **Characterize, Interpret and Analyze Data**

Building on Data Provider Relationships

- Context for SyS Collaboration
  - Routine: monitoring and confirming daily/weekly clusters
  - Risk from anticipated public health threats: special events
  - Risk from existing public health threats: I.D. outbreaks or environmental exposures
- Notification and reach-back collaboration for additional patient information to support public health response protocol/decision making

Onboarding

- Registration
- Data-Use Agreements/MOUs
  - Between provider and data aggregator; data aggregator and hospital & PH users
  - Defines roles and responsibilities, usage standards (ISDS Final Recommendation), readiness (Readiness Guide), and data requirements (PHINMG MU2)
  - Meaningful Use stages 2&3

SyS Meaningful Use Reporting

- Reporting SyS data for MU Stage 2
  - PH Readiness Requirements (Readiness Guide)
  - PHIN MG 2.0 is guidance but public health usage defines final data reporting requirements
  - Frequency of reporting at least once every 24 hours; every 6 hours for batch reporting in 2018
  - PHIN MG 2.0 includes both syndromic and diagnostic components (46 data elements)

Data Provider Registration

- Registration of Intent to Report SyS
  - Active Engagement
    - Option 1 – registration to submit data allows providers to meet measure when PHA has limited resources
    - Option 2 – Testing & Validation where provider is in process of active data test/validation and must correct problems within 60 days of notification from PHA
    - Option 3 – Production where provider has completed T&V

*Collect and Process Data**

- Receive and validate raw HL7 messages
- Confirm correct reporting frequency of data
- Extract data from HL7 messages and validate for missing or mis-located data segments
- Classify validated data in preparation for analysis
- **Data quality management – feedback to data providers.**

 * This task set is performed by data aggregator

Data Quality Management

- Core Process of Syndromic Surveillance
- Requires 1) collaboration between collection/processing and 2) relationship management
- Quality measures – flow, quality, sustainability
  - Representativeness
  - Frequency of reports
  - Missing/misplaced data elements
  - Intrinsic data quality e.g. correct/valid codes or textual data
  - Extrinsic data quality e.g. valid data for intended PH use cases
- Quality analytics integrated in NSSP/ESSENCE

NIST - HL7 v2.5.1 SyS MU Validation Suite

Meaningful Use Stage 2 DQ Requirements

- HL7 messages – ADT A01, A03, A04, A05, A08
- PID Patient Identifier, Date Birth, 5 Digit ZIP
- OBX segment contains the temperature
- DG1 Diagnosis

MSH|^~\&|EPIC|……..
EVN|A03|20131023143659|……..
PID |……..
PV2|||Bad Cold|………
PV1|1|E|………
OBX|1|……..
OBX|2|………
OBX|3|NM|MUPTAGE|3|8||||||F
OBX|4|NM|MUPTTEMP|4|104.2||||||F
DG1|1|ICD-9-CM|487.1^Influenza with other respiratory
manifestations^ICD-9-CM|…

Emergency department discharge diagnosis of an 8 year old with a temperature of 104.2 and diagnosis of influenza

Data aggregators are responsible for:

- Creating and managing Networks and Support Software:

- Performing as the technical interface to hospitals:

  IT - Network Staff
  IT - HL7 and Database Integration Staff

- Providing non-stop operations:
  Assures Network uptime
  Assures quality of data
  Assures security best practices
  Assures timely respond to problems

# *Characterize, Interpret and Analyze Data*

- Utilizes SyS analytics tools

- Response Protocol Framework – MMWR paper *"Syndromic Surveillance on the Epidemiologist's Desktop: Making Sense of Much Data"* from Resources

- Evaluate findings compared to other data and surveillance sources

Building a Community of Practice

- Harris County, Texas
- City of Houston Health Department
  - SyS Consortium Region 6/5S
- ISDS Community of Practice Program

Questions
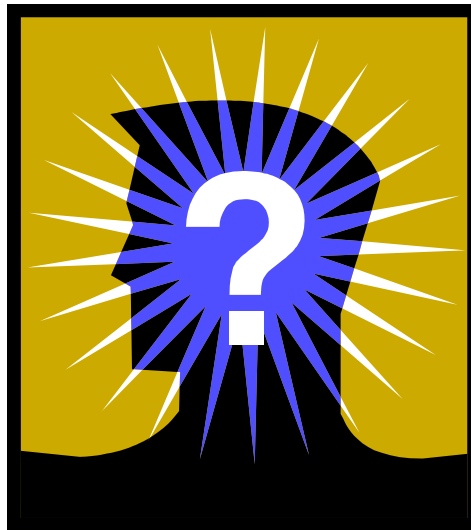
Thank you!

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Resources Links

- SyS Quickstart Guide – PDF Document
- SyS Response Protocol Framework
- SyS Readiness Guide
- PHIN Messaging Guide v2.0
- ISDS Core Processes and EHR Requirements for Public Health SyS
- NSSP Onboarding Guide
- NACCHO/Tarrant APC SyS Tools
- CDC Meaningful Use Webpage